

Syllabus

ISE217: Windows PowerShell Programming

Credit Hours: 4

Prerequisites: COM158, ISE205

Course Description

This course provides students with the knowledge and skills needed to understand the structure, syntax and use of Microsoft Windows PowerShell and to use PowerShell command-lets to efficiently automate common client/server administrative and management tasks. Additionally, students will learn how to use Windows PowerShell techniques for discovery, working with event logs, retrieving data and work with text as well as working with the file system, registry and environment variables.

Instructor Contact Information

Instructor Name	Gerard Arthus
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Course Length

The college evaluates each course in terms of quarter hours of credit. One unit of credit is usually equivalent to a minimum of ten academic instruction hours of lecture and examination, twenty hours of skill development, or thirty hours of externship, or a combination of the three. An academic instructional hour is fifty minutes.

This class will meet for the equivalent of a minimum of 55 instructional hours or as otherwise scheduled by the college and at least in conformance with this minimum and the Syllabus. As specified by the Method of Instruction section of this Outline, the instructor will ensure that the total class sessions presented consist of a minimum of 27.5 direct faculty instruction hours and a maximum of 27.5 appropriate classroom activity hours.

All course offerings require outside preparation time, which is approximately two hours per lecture instructional hour and/or one hour per skill development instructional hour, depending on the background, interest, abilities, and motivation of the individual student.

Course Objectives

By the end of this course, you should be able to:

1. Install Windows PowerShell and Windows PowerShell .NET Framework 2.0.
2. Understand Windows PowerShell architecture.
3. Set PowerShell startup options and start and stop PowerShell.
4. Find available PowerShell commands and get help with PowerShell.
5. Understand the limitations of CMD.exe and how Windows PowerShell addresses these limitations.
6. Understand the Windows PowerShell Object-Based approach and the new Cross-Tool approach.

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7. Understand PowerShell Command Line Parsing Approaches and Use the Interactive Shell to find running processes and services.
8. Use Snapins, Startup Files and Preferences in Windows PowerShell.
9. Use Trusting Operations in Windows PowerShell.
10. Use Parameters in Windows PowerShell and use wildcards in Parameter values.
11. Filter and Format output of Windows PowerShell Cmdlets.
12. Enable Windows PowerShell scripting.
13. Use Windows PowerShell to create Arrays and Associative Arrays.
14. Understand and use conditional and looping constructs in Windows PowerShell.
15. Understand and use the .NET String Class in Windows PowerShell and cast text strings to other classes.
16. Create new objects and use synthetic types in Windows PowerShell.
17. Create .NET objects, and use .NET reflection using Windows PowerShell.
18. Use Windows PowerShell to explore System State, Environmental Variables, Services, and the current Application Domain.
19. Handle Errors and Exceptions in Windows PowerShell using error related variables, the trap statement and set ErrorAction Parameters.
20. Use PowerShell to explore and make changes to the Windows File System.
21. Use PowerShell to explore and modify Environment Variables
22. Use PowerShell to work with Event Logs.
23. Use PowerShell to work with Windows Management Instrumentation (WMI)

Gradebook

A student's performance in this course will be evaluated using a variety of factors listed below. Instructors must use a minimum of three (**homework, tests, and a final exam are required**), and it is recommended that instructors use all five areas in your evaluation.

The exact weight to be given to any particular area is determined by the instructor and will normally fall within the ranges listed below.

Area	Percentage for this Course	Suggested Range
Final Exam	25%	20 – 25%
Tests	30%	20 – 40%
Homework	15%	10 – 15%
Project/Research Paper	20%	20 – 25%
Class Participation	10%	10 – 15%
TOTAL	100%	

Letter Grade	Points	Explanation
A	94-100	Excellent
B	84-93	Above Average
C	74-83	Average

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D	64-73	Below Average
F	63 & Below	Failure

Textbook & Instructional Material

Microsoft Windows PowerShell 2.0 Programming 2nd Edition, by Jerry Lee Ford, Jr., Cengage Publishing, 2009

The instructor might utilize additional instructional materials as provided by the publisher.

Course Outline

Term: 131

Class Date: 26 November 20012 Chapter 1: <i>Introducing Windows PowerShell</i>	Homework Due Date: <u>5 December 2012</u>
In Class Activities Do all of the exercises and take screenshots of each in chapter 1 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.	Homework Post a reply to the discussion forum posted on the web-assist site for this week. Complete all of the readings for this week posted on the web-assist site. Review the videos and tutorials posted on the web-assist site for this week. Complete the homework Lab assigned for this week.
Class Date: 3 December 2012 Chapter 2: <i>Interacting with the Windows PowerShell Command Line and Graphical Environment</i>	Homework Due Date: <u>12 December 2012</u>
In Class Activities	Homework

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<p>Do all of the exercises and take screenshots of each in chapter 2 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.</p>	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
<p>Class Date: 10 December 2012 Chapter 3: <i>Object Based Scripting with .NET</i></p>	<p>Homework Due Date: <u>18 December 2012</u></p>
<p>In Class Activities</p>	<p>Homework</p>
<p>Do all of the exercises and take screenshots of each in chapter 3 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.</p>	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>

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Class Date: 17 December 2012 Chapter 4: <i>Working with Variables, Arrays, and Hashes</i>	Homework Due Date: <u>25 December 2012</u>
In Class Activities	Homework
Do all of the exercises and take screenshots of each in chapter 4 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
Class Date: 24 December 2012 Chapter 5: <i>Implementing Conditional Logic</i>	Homework Due Date: <u>2 January 2013</u>
In Class Activities	Homework
Do all of the exercises and take screenshots of each in chapter 5 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned</p>

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	for this week.
Class Date: 31 December 2013 Chapter 6: <i>Using Loops to Process Data</i>	Homework Due Date: <u>8 January 2013</u>
In Class Activities	Homework
Do all of the exercises and take screenshots of each in chapter 6 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
Class Date: 7 January 2013 Chapter 7: <i>Organizing Scripts Using Functions</i>	Homework Due Date: <u>16 January 2013</u>
In Class Activities	Homework
Do all of the exercises and take screenshots of each in chapter 7 of the book and identify each screen shot with explanatory dialog, pasting them into a	Post a reply to the discussion forum posted on the web-assist site for this week.

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<p>Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.</p>	<p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
<p>Class Date: 14 January 2013 Chapter 8: <i>Working with Files and Folders</i></p>	<p>Homework Due Date: <u>24 January 2013</u></p>
<p>In Class Activities</p>	<p>Homework</p>
<p>Do all of the exercises and take screenshots of each in chapter 8 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.</p>	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
<p>Class Date: 21 January 2013</p>	<p>Homework Due Date: <u>2 January 2013</u></p>

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Chapter 9: <i>Basic System Administration</i> Chapter 10: <i>Debugging PowerShell Scripts</i>	
In Class Activities	Homework
<p>Do all of the exercises and take screenshots of each in chapter 9 and 10 of the book and identify each screen shot with explanatory dialog, pasting them into a Word-processor document. Upload the document here as your class-work assignment. All work will be graded for grammar, spelling and content.</p> <p>Final Project topic assigned.</p>	<p>Post a reply to the discussion forum posted on the web-assist site for this week.</p> <p>Complete all of the readings for this week posted on the web-assist site.</p> <p>Review the videos and tutorials posted on the web-assist site for this week.</p> <p>Complete the homework Lab assigned for this week.</p>
Class Date: 28 January 2013	
In Class Activities	
Final Exam	

This course has an in-class final exam. Final exam date:

Additional Final Exam Information:

Method of Instruction

Instructional techniques must be appropriate, and at a collegiate level, to the specific goals and objectives cited above. Students and instructors must have a clear understanding of the goals and

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time requirements of this course, the nature of the course context, and method of evaluation.

This course has two distinct but related instructional phases. The first component constitutes a minimum of 27.5 direct faculty instruction hours. This component is the lecture series and provides instruction in theory, principles or practices of the course. The second component constitutes a maximum of 27.5 appropriate classroom activity hours. This component is the skill development phase of the course and provides students the opportunity to apply knowledge gained in the lecture series. Method of instruction must fulfill the intended learner outcomes and competencies stated in the course goals and objectives and are appropriate to the capabilities of the students. For career oriented courses, the instructor must demonstrate that an effective relationship exists between curricular content and current practices in the field.

Additional Class Notes

Go to <http://www.openeducation.org/moodle> to use the Web-Assisted site for this course. Quizzes and discussion forums will be completed on-line at this site; and all other assignments will be uploaded there.